

Master of Engineering, Autonomous Maritime Operations (60 SP)

Examen: **Högre yrkehögskoleexamen i sjöfart**

Examensbenämning: **Ingenjör (högre YH)**

Beräknad studietid: **2 år**

Studieform: **Flerformsstudier** **F**

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Kontaktuppgifter: [Enheter](#) | [Utbildningsansvariga](#)

Kod	Namn	Studiepoäng/år/totalt					
		1	2	3	4	5	Totalt
AD PRO	Advanced professional studies						SP
AMO18MI	Master Studies - Introduction <i>The student:</i> <ul style="list-style-type: none"> - has the necessary skills for distance studies and e-learning - develops an understanding about academic writing - knows a variety of research methods - understands maritime operations, and how Autonomous vessels and the fourth revolution of shipping will affect maritime operations including new business models in shipping. - can recognize maritime legislation and legal perspectives for autonomous vessels. 	5					5 SP
AMO18MI01	<ul style="list-style-type: none"> • Studying in the Master's Program <i>The aim of the introduction is to ensure that the student is able to successfully work with the studies.</i> <i>The student:</i> <ul style="list-style-type: none"> - is able to use the e-learning platform - is aware of the characteristics of distance studies - knows how to submit materials - knows the principles of academic writing and referencing - is familiar with different tools for communicating lecturers 	1					1 SP
AMO18MI02	<ul style="list-style-type: none"> • Research and Research Methods <i>The aim of the course is to give the student the tools for choosing a suitable method for the master's thesis.</i> <i>The student:</i> <ul style="list-style-type: none"> - has a deeper understanding about what research is, how it can be done and what it is used for - knows the importance of formulating research problems - knows how to write a research plan - is familiar with different research methods, emphasizing methods suitable for the industry 	1,5					1,5 SP
AMO18MI03	<ul style="list-style-type: none"> • Introduction to Marine Operations <i>The student:</i> <ul style="list-style-type: none"> - understands maritime operations, and how Autonomous vessels and the fourth revolution of shipping will affect maritime operations including new business models in shipping. - can recognize maritime legislation and legal perspectives for autonomous vessels. 	2,5					2,5 SP
AMO18AV	Autonomous vessels – automation <i>The Student:</i> <ul style="list-style-type: none"> - has an overall picture about automation and control, what is automated today and what developments are likely or possible in the future. - can recognize what technology and different solutions is needed for autonomous vessels. - can recognize what new risks the autonomous vessels will face and how they can be mitigated. 	5					5 SP
AMO18AV01	<ul style="list-style-type: none"> • Autonomous vessels – automation <i>The Student:</i> <ul style="list-style-type: none"> - has an overall picture about automation and control, what is automated today and what developments are likely or possible in the future. - can recognize what technology and different solutions is needed for autonomous vessels. - can recognize what new risks the autonomous vessels will face and how they can be mitigated. 	5					5 SP
AMO18AI	Artificial Intelligence, Machine Learning, Human - Machine Interaction <i>The Student</i> <ul style="list-style-type: none"> - has an basic understanding of AI and the history of AI. - has knowledge of where AI is used and its development today. - has an basic understanding of different machine learning algorithms and their future possibilities - can recognize different inputs used in AI and machine learning - recognises the possibilities to get information and data from different systems and how Human - Machine Interaction is adapted in autonomous vessels 	5					5 SP

AMO18AI01	<p>• Artificial Intelligence, Machine Learning, Human - Machine Interaction <i>The Student</i></p> <ul style="list-style-type: none"> - has an basic understanding of AI and the history of AI. - has knowledge of where AI is used and its development today. - has an basic understanding of different machine learning algorithms and their future possibilities - can recognize different inputs used in AI and machine learning - recognises the possibilities to get information and data from different systems and how Human - Machine Interaction is adapted in autonomous vessels 	5					5 SP
AMO18CS	<p>Cyber security and Connectivity <i>The student</i></p> <ul style="list-style-type: none"> - understand risk management and information security. - understands current main threats to cyber security and connectivity in shipping and autonomous vessels. - has gained capabilities to mitigate risks in information security and cyber security. - understands possibilities and limitations of connectivity for autonomus vessels. 	5					5 SP
AMO18CS01	<p>• Cyber security and Connectivity <i>The student</i></p> <ul style="list-style-type: none"> - understand risk management and information security. - understands current main threats to cyber security and connectivity in shipping and autonomous vessels. - has gained capabilities to mitigate risks in information security and cyber security. - understands possibilities and limitations of connectivity for autonomus vessels. 	5					5 SP
AMO18RO	<p>Remote Operations <i>The student</i></p> <ul style="list-style-type: none"> - is able to recognize different Human Factors involved in Remote operations - is familiar with existing surveillance and fleet management operation centres - knows how to perform and communicate during Remote monitoring and operations - understands the existing technology used in remote operations 		5				5 SP
AMO18RO01	<p>• Remote Operations <i>The student</i></p> <ul style="list-style-type: none"> - is able to recognize different Human Factors involved in Remote operations - is familiar with existing surveillance and fleet management operation centres - knows how to perform and communicate during Remote monitoring and operations - understands the existing technology used in remote operations 		5				5 SP
AMO18CQ	<p>Classification, qualification and safety perspectives <i>The student</i></p> <ul style="list-style-type: none"> - is familiar with classification processes and requirements developed by national and international maritime authorities of autonomous vessels. - has an overall picture of safety and security on autonomous vessels including risk assessment. processes and risk handling. - understands the role & responsibilities of ship masters / operators and ship owners. 		5				5 SP
AMO18CQ01	<p>• Classification, qualification and safety perspectives <i>The student</i></p> <ul style="list-style-type: none"> - is familiar with classification processes and requirements developed by national and international maritime authorities of autonomous vessels. - has an overall picture of safety and security on autonomous vessels including risk assessment. processes and risk handling. - understands the role & responsibilities of ship masters / operators and ship owners. 		5				5 SP
Master's Degree Thesis							SP
AMO18MT	<p>Master's Thesis <i>The master's thesis is a demanding development project or research work combining theory, practise and creating new knowledge. The topic and aim of the thesis are based on the needs and demands of the industry.</i></p> <p><i>The Student</i></p> <p>* is able to combine theoretical framework and practice with the contextual needs in a development or research project</p>	10	20				30 SP

	<p><i>* is able to network and communicate professionally with relevant organisations and industry representatives</i></p> <p><i>* is able to critically evaluate sources and methods, select the suitable ones and use them systematically and ethically</i></p> <p><i>* is able to document, report and give a presentation of the project or research status and the final results</i></p>						
		10	20				30 SP
AMO18MT01	<p>• Master's Thesis - Part 1 <i>Master's Thesis 1</i></p> <p><i>The student</i></p> <ul style="list-style-type: none"> - can plan and develop a suitable objective and research project - can choose a suitable method for the project - has written a description of the research problem following principles in academic writing - can present the thesis project - is able to revise the project after receiving feedback. 	10					10 SP
AMO18MT02	<p>• Master's Thesis - Part 2 <i>Master's Thesis 2</i></p> <p><i>At the second stage the process continues by gathering information and combining the theoretical framework and empirical work. A meaningful development project is based on the requirements of working life commissions.</i></p> <p><i>The student</i></p> <ul style="list-style-type: none"> - is able to critically evaluate the used sources and methods - can select applicable sources and uses them systematically - is able to use the methods chosen for the project - is able to self-evaluate and discuss work(s) in progress - can present and discuss work(s) in progress. 		10				10 SP
AMO18MT03	<p>• Master's Thesis - Part 3 <i>The student:</i></p> <ul style="list-style-type: none"> - masters the methods and practices used in the maritime industry and is able to complete a thesis - is able to document the final results and report the project according to good ethical principles - is capable to give a presentation as well as to publish the thesis 		10				10 SP
		10	20				SP
ELEC	Elective Studies						SP